



UNIVERSITY OF JOHANNESBURG
FACULTY OF EDUCATION
NOVEMBER EXAMINATION 2015

PROGRAMME: MEd
MODULE: ISSUES IN SCIENCE TEACHING AND LEARNING
CODE: IMS9X20
TIME: 3 hours
MARKS: 100
EXAMINER: Prof U. Ramnarain and Dr L. Mnguni
MODERATOR: Dr N. Govender (UKZN)

(This paper consists of 3 pages)

INSTRUCTIONS

You need to answer any TWO (2) questions in this paper. You are expected to write between 6 to 10 pages in your answer for each question. Read the questions carefully before answering them. The following rubric will be used in guiding our assessment of your answers:

Criteria	Level 1 (0-25%)	Level 2 (26-49%)	Level 3 (50-74%)	Level 4 (75-100%)
Introduction	-weak introduction of topic -thesis is weak and lacks an arguable position	-adequate introduction that states topic , thesis and some of the subtopics - thesis is somewhat clear and arguable	-proficient introduction that states background information, controversial question, topic, thesis, and all subtopics in proper order - thesis is a clear and arguable statement of position	-exceptional introduction that grabs interest of reader and states background information, controversial question, topic, thesis, and all subtopics in proper order - thesis is exceptionally clear, arguable, well developed, and a definitive statement

Quality of Information / Evidence	-limited information on topic or inaccurate information	Some accurate evidence but still inadequate	Detailed information with accurate & critical evidence	extremely detailed and accurate with critical evidence from a variety of sources
Support of Ideas / Analysis	-limited connections made between evidence, arguments and counter-arguments -lack of analysis	-some connections made between evidence, arguments and counter-arguments -showing analysis	-consistent connections made between evidence, arguments and counter-arguments -showing good analysis	-exceptionally critical, relevant and consistent connections made between evidence, arguments and counter-arguments -showing excellent analysis
Organization / Development of Ideas	-paper lacks clear and logical development of ideas with weak transition b/w ideas and paragraphs	-somewhat clear and logical development of subtopics with adequate transitions b/w paragraphs	-clear and logical subtopic order that supports thesis with good transitions b/w paragraphs	-exceptionally clear, logical, mature, and thorough development of subtopics that support thesis with excellent transition b/w paragraphs
Conclusion	-lack of summary of topic, with weak concluding ideas	-adequate summary of topic, with some final concluding ideas	-good summary of topic, with clear concluding ideas	-excellent summary of topic (with no new information), in proper order with concluding ideas that leave an impact on reader
Language Conventions	- inconsistent grammar, spelling and paragraphing throughout paper	-paper has some errors in grammar, spelling and paragraphing	-paper is clear, with mostly proper grammar, spelling and paragraphing	-paper is very concise, clear, with consistently proper grammar, spelling and paragraphing

QUESTION 1

Discuss the two 'p-prims' and 'misconceptions' perspectives on learner ideas in science learning. Against your own experiences as a science teacher, critically reflect on these perspectives. You may use examples you have encountered in your classroom to elaborate upon own view.

(50)

QUESTION 2

Critically reflect on the role of visual models in science teaching and learning. Discuss in particular how visual models can cause misconceptions in science learning, and also be used to correct misconceptions in science. (50)

QUESTION 3

Discuss the principles of inquiry-based science education, and the pedagogical strategies/approaches teachers can employ in its enactment in the classroom. (50)

QUESTION 4

Indigenous knowledge systems is knowledge that is characterised by its “embeddedness in the cultural web and history of a people including their civilisation and forms the backbone of the social, economic, scientific and technological identity of such a people” (Odora Hoppers, 2001:4)

Critically reflect on the inclusion of indigenous knowledge (IK) in the school science curriculum. Address the following in your answer:

- What is meant by IK? What is the nature of IK?
- Are IK and so-called ‘western science’ in conflict?
- Why should IK be included in science education?
- Give practical examples from the Natural-, Life- and/or Physical Sciences, on how a teacher can incorporate IK in science education.
- What are the factors that negatively impact on the incorporation of IK in the classroom? (50)

TOTAL: 100

